

RF MIXER WITH HIGH LOCAL OSCILLATOR LINEARITY USING
MULTIPLE LOCAL OSCILLATOR PHASES

ABSTRACT OF THE DISCLOSURE

An RF mixer includes a plurality of submixers coupled to a single input transistor pair and a single tail current source. An input LO signal is divided into multiple individual waveforms, each having a different phase. The phase differences are even in that the phase difference between any two time-adjacent individual waveforms is approximately equal to the phase difference between any other two time-adjacent individual waveforms. The submixers are appropriately scaled so that the individual waveforms, when summed, create a piecewise linear LO signal. The submixers also combine the individual waveforms with an input baseband signal to produce an output signal or to produce a baseband signal from an input mixed signal. In order to reduce noise in the system, only one submixer is active at any time. Further, polarities of some individual waveforms are reversed so that to avoid signal cancellation when by combining waveforms of opposite polarities.